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DOCUMENTATION OF PROCEDURE FOR ESTIMATING  
CAPABILITY OF HABITAT TO SUPPORT BREEDING PAIRS OF  
SPOTTED OWLS

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**What is the Purpose of this Document?**

This paper describes the process by which capability to support pairs of spotted owls was estimated in the Final Spotted Owl Supplement to the EIS for the Regional Guide. Because the species ranges widely, viability of spotted owls should be viewed across National Forest boundaries. Thus, it is important that each National Forest calculate capability to support pairs in the same way as each other and as was done in the Final SEIS.

**What is Capability to Support Pairs of Spotted Owls?**

Capability to support pairs of spotted owls is an estimate of potential population size expressed as number of breeding pairs of spotted owls that could be supported by habitat available at a given point in time. Capability to support pairs is not a field census of spotted owls. Estimates of capability to support pairs is based on: total amount and distribution of suitable spotted owl habitat; and likelihoods of pairs of spotted owls occupying sites with specific amounts of habitat. Actual numbers of breeding pairs of spotted owls will be different than estimated capability to support pairs due to annual variations in resources or errors in assumptions.

Estimates of capability to support pairs is used to approximate current and future potential size of each spotted owl population under various planning alternatives. Size of populations is one factor needed for assessing viability of populations.

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## What Land Area is Used to Calculate Capability to Support Pairs of Spotted Owls?

Capability to support pairs of spotted owls should be calculated separately for: (1) National Forest lands not reserved and (2) National Forest reserved lands. This is because the amount and distribution of suitable habitat will change over time on lands not reserved (mostly because of timber harvest and regrowth of forests), but are assumed to remain constant in a dynamic balance of losses and gains on reserved lands.

### Calculations of Capability to Support Pairs of Spotted Owls

As an overview, capability to support pairs is calculated separately for reserved lands and for non-reserved lands; then, these two estimates are added to derive total capability across all land allocations on a National Forest. Capability is estimated by taking into account three main factors:

- o total acreage of suitable spotted owl habitat over time;
- o the degree of fragmentation of that habitat; and
- o the likelihood that various amounts of available habitat would actually be occupied by a pair of spotted owls.

Each of these steps is discussed next.

#### I. Estimating capability to support pairs on National Forest lands not reserved.

Capability to support pairs on National Forest lands not reserved is calculated by accounting for: amount of suitable habitat remaining constant on lands not suitable for timber production, and the amount changing on lands suitable for timber production (see Tables 1 and 2). Calculations should be made for various planning alternatives, as they affect the amounts of habitat allocated on these two land classes. Calculations involve 7 steps and differ slightly between current and future projections.

1. Amount of habitat is shown for each planning alternative for year 0 and for future years for which plan projections are being made.

For the current point in time (year 0; see Table 1), denote the total amount of suitable spotted owl habitat on non-reserved lands (column g in Table 1), and this amount occurring on lands suited for timber production (column a in Table 1) and on land unsuited for timber production (column b in Table 1). Determinations of suitability are based on the alternative being considered. Also show, for the particular spotted owl management alternative being assessed, the total amount of suitable spotted owl habitat to be designated within Spotted Owl Habitat Areas (column i in Table 1), also shown for lands suited for timber production (column c in Table 1) and for land unsuited for timber production (column d in Table 1). Finally, show the total non-reserved, forest acres occurring on the forest (column h in Table 1).

2. Calculate the total amount of suitable spotted owl habitat occurring on non-reserved lands outside of designated Spotted Owl Habitat Areas, shown

as occurring on lands suited for timber production (column e in Table 1) and on lands not suited for timber production (column f in Table 1). These are calculated from the data in step 1, above (see key in Table 1 for calculations).

3. Calculate the proportion (ranging from 0 to 1) of the total non-reserved forested land base that occurs as suitable spotted owl habitat (column j in Table 1; see key in Table 1 for calculation).

4. The proportion calculated in step 3 is then used to derive a **habitat fragmentation index** (column k in Table 1). The fragmentation index is a curve that predicts the proportion of all suitable spotted owl habitat occurring on non-reserved lands that could be useable within an annual home range area of a pair of spotted owls. The habitat fragmentation index (FI), which ranges from 0 to 1, is calculated as:

$$FI = 0.688 + 0.084 \times \ln (100 \times \text{Proportion})$$

where Proportion is calculated from step 3 (column j in Table 1). If the calculated value of FI exceeds 1, then set the value of FI equal to 1. (The value of FI may occasionally exceed 1, since the above formula was derived as a best-fit curve among all spotted owl forests, and thus represents average values.)

NOTE: The habitat fragmentation index itself was derived as follows. Total acreage of suitable spotted owl habitat occurring within 2.1-mile radius circles located randomly across forest maps showing the current location of suitable habitat was tallied. The 2.1-mile radius circles represented annual home range areas of spotted owl pairs. The proportion of all suitable habitat sampled in these circles that occurred in amounts less than 300 acres within any one circle was calculated. This depicted the proportion of all suitable habitat currently occurring in parcels too small and isolated to be used by breeding pairs of spotted owls.

For example, on a given National Forest, some 5 percent of all the acreage of suitable habitat tallied in the circle samples may have occurred in circles having less than or equal to 300 acres of habitat. (The habitat may have occurred in one or more stands of mature or old-growth forest.) Given this, 95 percent of all suitable habitat occurring on that forest would occur in a distribution such that at least 300 acres could be found in a 2.1-mile radius circle. The 95 percent figure is the value of the fragmentation index for the type of landscape represented by that National Forest. The 300 acre figure was selected because no radio-telemetry studies of spotted owl pairs have shown there to be less than or equal to 300 acres of suitable habitat within an annual home range area of a breeding pair.

The proportion of suitable habitat occurring in amounts of

at least 300 acres within a 2.1-mile radius circle was then correlated with the total proportion of the forested land base that occurs as suitable spotted owl habitat on that forest. This was done across all 13 National Forests that support spotted owls in the Pacific Northwest Region. The result was a curve that predicted the fraction of suitable habitat occurring in amounts of at least 300 acres within an area usable by a spotted owl pair (2.1-mile radius circle), given the proportion of the total forest land base occurring as suitable spotted owl habitat. The formula presented above describes a curve that fits the 13 points the best.

The curve (or formula) is used to predict future values of the fragmentation index. For example, under a specific planning alternative and at a specified point in time, the proportion of total forest land base occurring as suitable spotted owl habitat is estimated (from FORPLAN data) by specifying harvest and growth rates of habitat on that forest. This proportion is used in the habitat fragmentation formula presented above to calculate the degree of fragmentation of suitable habitat at that point in time.

5. The average amount of suitable spotted owl habitat occurring in 1.5-mile radius circles randomly placed on non-reserved land is calculated (column 1 in Table 1). This represents the average amount of suitable spotted owl habitat available to a pair of spotted owls within an area representing an average pair home range. The formula used to calculate this figure is shown in the key under Table 1. This formula was derived from figures drawn from circles samples placed randomly on maps of the Forests. The formula expresses the actual amount of habitat found, on average, in 1.5-mile radius circles on Forests with different degrees of fragmentation.

NOTE: a 2.1-mile radius circle was used to derive the fragmentation index curve and a 1.5-mile radius circle is used here to calculate average amounts of habitat available to pairs of spotted owls. In the derivation of the fragmentation index, the larger circle covers about 9000 acres, which represents the largest annual home range area of a pair of spotted owls (known as of 3/87); the fragmentation index is meant to denote the proportion of all potentially suitable spotted owl habitat that could be useable by at least some pairs. In the present step, however, the 1.5-mile radius circle, which covers about 4500 acres, represents the average annual home range area of a pair of spotted owls (known as of 3/87); and the current step is meant to denote average conditions.

6. Next is an estimation of the likelihood that a spotted owl pair would indeed occupy sites with the average amounts of suitable habitat available within a home range area, as calculated in step 5, above. This assessment

takes into account all habitat that would be available within an average home range area, not just habitat occurring within designated Spotted Owl Habitat Areas. The likelihood that a spotted owl pair would occupy sites with known average amounts of suitable habitat available within a home range area is presented as a **habitat capability index** (column m in Table 1). Values of the index range from 0 to over 1 (values over 1 may denote a capability of the amount of habitat for supporting slightly greater than one pair of owls). The formulas describing the habitat capability indexes (HCI) for Washington and Oregon are as follows:

for Washington:

$$\begin{aligned} \text{HCI} = & 0.157 + (1.476 \times 10^{-4})(\text{MEANHAB}) + (-7.429 \times 10^{-8})(\text{MEANHAB}^2) \\ & + (3.216 \times 10^{-11})(\text{MEANHAB}^3) \end{aligned}$$

for Oregon:

$$\text{HCI} = 0.264 + (2.76 \times 10^{-4})(\text{MEANHAB}) + (-2.0 \times 10^{-8})(\text{MEANHAB}^2)$$

where MEANHAB is the mean amount of habitat in the 1.5-mile radius circles calculated in step 5, above.

NOTE: The habitat capability index is a curve depicting the likelihood that a site is occupied by a breeding pair of spotted owls, given total amount of suitable habitat occurring within a 1.5-mile radius circle. Separate curves were derived for depicting likelihoods in Washington and Oregon. Data used to derive the two curves were from field surveys and research on spotted owls from the two states, respectively. Specific documentation on derivation of the curves can be found in the Final Spotted Owl SEIS, Appendix B, and is available as planning process documents from the Regional Office.

7. **Capability to support pairs of spotted owls** (column n in Table 1) is calculated as follows. The total non-reserved habitat (column g in Table 1) is multiplied by the proportion considered usable by owls (column k in Table 1), giving the product g times k. This product is then divided by the average acres within areas that are useable by owls (column l in Table 1). The result  $([g \times k]/l)$  is the total number of useable areas of average acres "l" that would be present on non-reserved land. This result is then multiplied by the probability (column m in Table 1) that each of those areas would support a pair of owls. Round down to the closest whole number. The result is the total number of pairs that could be supported on non-reserved land.

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Capability to support pairs of spotted owls at future years (Table 2)

is calculated as above, with the addition of one step to account for gains of habitat over time. The addition of habitat grown potentially affects the total amount of suitable, non-reserved habitat over time.

A column in the calculations (column h in Table 2) is added to represent the amount of previously unsuitable spotted owl habitat that grows into suitable condition. This acreage would likely be capable habitat designated in habitat areas that becomes suitable as the forest stands reach adequate size and age. Then, the total acres of designated Spotted Owl Habitat Areas (column i in Table 2) is the sum of these ingrown, added acres (column h in Table 2) and the amount of suitable spotted owl habitat originally designated at year 0 (column i from Table 1). Finally, total amount of suitable habitat at future years (column f in Table 2) is the sum of: total amount of habitat on non-reserved lands outside Spotted Owl Habitat Areas on lands suited for timber production (column c in Table 2), the total habitat on non-reserved lands outside Spotted Owl Habitat Areas on lands unsuited for timber production (column f in Table 1), and the total suitable habitat within Spotted Owl Habitat Areas at present (column i in Table 1).

NOTE: In the example shown in Table 2, there is no additional habitat shown growing into suitable condition (column h in Table 2, "Added SOHA acres"). This is because Table 2 represents conditions at year 15, and none of the unsuitable acres had yet grown into suitable condition.

## II. Estimating capability to support pairs on National Forest reserved lands.

The capability to support pairs on National Forest reserved lands was calculated as follows (see Table 3).

1. Total acreage of suitable spotted owl habitat occurring on reserved lands on each National Forest was tallied (column b in Table 3).
2. Average acreage of suitable habitat occurring within 1.5-mile radius circles within reserved lands was tallied (column a in Table 3).
3. Dividing average amount of habitat within the circle samples into total amount of habitat gave the average number of 1.5-mile radius circles containing suitable spotted owl habitat in that reserved area (column c in Table 3). (This is the same procedure as that used on non-reserved land.)
4. The value of the habitat capability index (column d in Table 3) is calculated from the average amount of suitable habitat occurring within the circle samples (see key in Table 3). This estimated the likelihood that any given circle area would hold a breeding pair of spotted owls.
5. Total capability to support breeding pairs for each reserved area (column e in Table 3) was calculated by multiplying the average number of circles containing suitable habitat in that reserved area by the value of the habitat capability index.

As an example, capability to support pairs on Olympic National Forest reserved lands was calculated as follows. There is an estimated 37,440 acres of suitable spotted owl habitat occurring within reserved lands on the Olympic National Forest. On average, about 1,862 acres of suitable habitat was found to occur within 1.5-mile radius circles drawn on maps within boundaries of the reserved areas on the forest. Thus, there were 20.1 circles ( $37,440 \text{ acres} / 1,862 \text{ acres per circle} = 20.1 \text{ circles}$ ) on reserved lands which would hold an average of 1,862 acres per circle.

Next, the habitat capability index value for 1,862 acres of habitat in Washington is about 0.38 (using the habitat capability index formula presented above). This means that, on average, about 38 percent of sites having 1,870 acres of suitable habitat within a 1.5-mile radius area have the capability to hold breeding pairs of spotted owls in Washington.

Finally, capability to support pairs on the reserved lands on the Olympic National Forest was calculated as 7 pairs by multiplying the calculated number of circles by the habitat capability index value ( $20.1 \text{ circles} \times 0.38$  probability of a pair per circle = 7.6 pairs; this rounds down to 7 pairs).

Each National Forest has already estimated capability to support pairs on reserved lands for use in the Final Spotted Owl SEIS. These figures, shown in Table 3, should be used for forest planning, unless substantial changes are made to habitat inventories or land allocations in reserved and non-reserved status.

III. Calculating total habitat capability on reserved plus non-reserved lands.

Total capability of the habitat to support pairs of spotted owls at each point in time on each National Forest is calculated by adding capability on reserved lands and capability on non-reserved lands (Table 4).

Capability to support pairs within a physiographic province or biological population should also take into account spotted owls and spotted owl habitat on other ownerships.

#### IV. Assumptions used in the estimates of capability.

Several key assumptions need to be made when using this procedure for estimating capability to support pairs of spotted owls.

1. Future amounts of suitable spotted owl habitat are estimated by using FORPLAN as a source of data on the amount of habitat in future decades. The assumption is that FORPLAN adequately and accurately predicts growth and harvest rates of suitable spotted owl habitat as applied to initial inventories.
2. It is assumed that the definition used to identify and tally suitable spotted owl habitat is accurate.
3. It is assumed that measurements of the amount of habitat fragmentation is accurate. This entails assuming that fragmentation of habitat between lands suitable for timber production and lands unsuitable for timber production is on average the same at designated spotted owl habitat areas as it is across the general non-reserved landscape on each National Forest.
4. Measuring likelihoods of occupancy of habitat areas by breeding pairs of spotted owls assumes that spotted owls could locate suitable habitat in a home range approximated by a 1.5-mile radius circle (about 4,500 acres) centered on designated spotted owl habitat areas on non-reserved and reserved National Forest lands.
5. Use of the fragmentation index assumed that locations in which less than 300 acres of suitable habitat occurring within a 9000-acre area (a 2.1-mile radius circle) would definitely NOT be useable over time by breeding pairs of spotted owls. Also, it assumes that locations in which more than 300 acres of suitable habitat occurring within a 9000-acre area MAY be useable by breeding pairs of spotted owls, but as qualified by the likelihoods of use as calculated through the habitat capability index.
6. Use of the habitat capability index assumes that probabilities of different amounts of habitat used by pairs of spotted owls would not change over time.
7. Use of both the fragmentation index and the habitat capability index assumed that 1.5-mile radius circles adequately represents the area (home range) within which pairs of spotted owls may locate and use suitable spotted owl habitat.

TABLE 1. ESTIMATING HABITAT CAPABILITY ON NON-RESERVED LANDS UNDER ALTERNATIVE 1 AT YEAR 0 (PRESENT).

		Total suitable habitat		Suitable habitat in SOHA's		Total suitable habitat, non-reserved, non-SOHA's		Total suitable habitat	Total non-reserved, forest acres	Total SOHA acres	Proportion to derive frag. index (FI)
Physiogr. Province	Forest	Suited (a)*	Unsuited (b)*	Suited (c)*	Unsuited (d)*	Suited (e)	Unsuited (f)	(g)	(h)	(i)	(j)
OLPE	OLY	167300	54310	19600	7520	147700	46790	221610	524876	27120	0.422
WACA	OKA	29415	56640	12660	320	16755	56320	86055	703200	12980	0.122
	WEN	339430	46150	52370	6360	286860	39790	385580	956650	58930	0.403
	MES	226030	142950	22160	16800	203870	126150	368980	1021900	38960	0.361
	GIP	235700	37200	67660	2820	168040	34380	272900	1163858	70480	0.234
	subtotal:	830575	282940	155050	26300	675525	256640	1113515	3845608	181350	
ORCA	MTH	284650	155200	12070	15910	272580	139290	439850	704901	27980	0.624
	WIL	407850	171300	36170	21510	371680	149790	579150	1179662	57680	0.491
	DES	20660	380	11860	1420	8800	-1040	21040	734000	13280	0.029
	UMP	338840	23920	29610	3940	309230	19980	362760	825828	33550	0.439
	RCP	114810	51450	17010	4590	97800	46860	166260	486801	21600	0.342
	WIN	28580	12170	8380	1440	20300	10730	40850	113813	9820	0.355
	subtotal:	1195490	414420	115100	48810	1080390	365610	1609910	4045005	163910	
KLAM	SIS	261956	57206	20227	9720	241729	47486	319162	803492	29947	0.397
CORA	SIU	105889	13188	37680	3020	68209	10168	119077	548007	40700	0.217
=====											
Totals:		2561210	822064	347657	95370	2213553	726694	3383274	9766988	443027	

KEY to calculations of columns:

a,b,c,d,h = from forest and FORPLAN data

e = a - c

f = b - d

g = a + b

i = c + d

j = g/h

\* = need to provide for each alternative; all other columns are calculated

Table 1. (Continued)

Physiogr.	Province Forest	Proportion suitable habitat useable by owls (from FI) (k)	Mean suitable habitat ac in circles (l)	HCI for mean habitat acres (m)	Habitat capa- bility (no. pairs) (n)
OLPE	OLY	1.000	1999	0.412	45.7
WACA	OKA	0.898	977	0.260	20.6
	WEN	0.998	1934	0.397	79.1
	MBS	0.989	1791	0.368	75.0
	GIP	0.953	1359	0.301	57.6
	subtotal:				232.3
ORCA	MTH	1.000	2687	0.861	141.0
	WIL	1.000	2234	0.781	202.4
	DES	0.776	657	0.437	10.9
	UMP	1.000	2058	0.747	131.7
	ROP	0.985	1724	0.680	64.6
	WIN	0.989	1784	0.693	15.7
	subtotal:				566.3
KLAM	SIS	0.997	1914	0.719	119.6
CCRA	SIU	0.947	1301	0.589	51.1
	Total:				1014.8

## KEY to calculations of columns:

k = Fragmentation Index

$$= 0.688 + 0.084 \times \ln(100 \times j)$$

(Note: set equal to 1 if calculation exceeds 1)

l = converts proportion (j) to mean acres in a 1.5-mile radius circle

$$= 559.66 + 34.1(100 \times j)$$

m = Habitat Capability Index

$$= 0.157 + (1.476 \times 10^{-4})(\text{col.1}) + (-7.429 \times 10^{-8})(\text{col.1}^2) + (3.216 \times 10^{-11})(\text{col.1}^3) \quad \text{in Washington}$$

$$\text{or } 0.264 + (2.76 \times 10^{-4})(\text{col.1}) + (-2.0 \times 10^{-8})(\text{col.1}^2) \quad \text{in Oregon}$$

$$n = [(g \times k)/l] \times m$$

TABLE 2. ESTIMATING HABITAT CAPABILITY ON NON-RESERVED LANDS UNDER ALTERNATIVE P AT YEAR 15.

		Fraction of non- reserved, non- SOHA suitable habitat acres on suited timber lands (from FORPLAN) (a)*	(Year 0) Suitable spotted owl habitat acres on suit. timber outside SOHAs (b)	(Year 15) Non-reserved non-SOHA suitable habitat on suited timber lands (c)
Physiogr.	Province Forest			
OLPE	OLY	0.547	147700	80792
WACA	OKA	0.987	16755	16537
	WEN	0.990	286860	283991
	NBS	0.676	203870	137816
	GIP	0.704	168040	118300
	subtotal:		675525	556645
ORCA	MTH	0.755	272580	205798
	WIL	0.650	371680	241592
	DES	0.730	8800	6424
	UMP	0.688	309230	212750
	ROR	0.600	97800	58660
	WIN	0.873	20300	17722
	subtotal:		1080390	742966
KLAM	SIS	0.684	241729	165343
CORA	SIU	0.600	68209	40925
Totals:			2213553	1586670

KEY to calculations of columns:

- 
- a = from FORPLAN data; calculated the same way as col. j in Table 1
  - b = from col. e in Table 1
  - c = a x b
  - \* = need to provide for each alternative; all other columns are calculated

Table 2. (Continued)

Physiogr. Province Forest		Total suitable habitat, non- reserved, non-SOHA's		Total suitable habitat	Proportion to derive index frag. FI(t)	Added SOHA acres (h)*	Total SOHA acres (i)
		Suited (d)	Unsuited (e)	Total (f)	(g)		
OLPE	OLY	80792	46790	154702	0.295		27120
WACA	ORA	16537	56320	85837	0.122		12980
	WEN	283991	39790	382711	0.400		58930
	MBS	137816	126150	302926	0.296		38960
	GIP	118300	34360	223160	0.192		70480
	subtotal:	556645	256640	994635			181350
ORCA	MTH	205798	139290	373068	0.529		27980
	WIL	241592	149790	449062	0.381		57680
	DES	6424	-1040	18664	0.025		13280
	UMP	212750	19980	266280	0.322		33550
	ROP	58680	46860	127140	0.261		21600
	WIN	17722	10730	38272	0.336		9820
	subtotal:	742966	365610	1272466			163910
KLAM	SIS	165343	47466	242776	0.302		29947
CORA	SIU	40925	10168	91793	0.167		40700
Totals:		1586670	726694	2756391			443027

## KEY to calculations of columns:

d = same as col. c (copied here for convenience)

e = from col. f in Table 1

f = d + e + i

g = f / (col. h in Table 1)

h = any ingrowth of suitable habitat designated in SOHAs

i = h + (i from Table 1)

\* = need to provide for each alternative; all other columns are calculated

Table 2. (Continued)

Physiogr. Province Forest		(FI % / 100)	Habitat capability		
		Propor. suitable habitat useable by owls (j)	Mean suitable habitat ac in circles (k)	index value for mean habitat acres (l)	Habitat capa- bility (no. pairs) (m)
OLPE	OLY	0.972	1565	0.329	31.6
WACA	OKA	0.898	976	0.260	20.6
	WEN	0.998	1924	0.395	78.4
	MBS	0.973	1571	0.330	61.9
	GIF	0.936	1213	0.284	48.9
	subtotal:				209.8
ORCA	MTH	1.000	2364	0.805	127.0
	WIL	0.993	1858	0.708	170.0
	DES	0.766	646	0.434	9.6
	UMP	0.980	1659	0.667	104.9
	ROR	0.962	1450	0.622	52.5
	WIN	0.983	1706	0.677	14.9
	subtotal:				478.8
KLAM	SIS	0.974	1590	0.652	97.0
CORA	SIU	0.925	1131	0.551	41.3
Totals:					858.7

## KEY to calculations of columns:

- 
- j = Fragmentation Index; same formula as with year 0 in Table 1, but based here on col. g
- k = converts proportion (col. g) to mean acres in a 1.5-mile radius circle; same formula as with year 0 in Table 1, but based here on col. g
- l = Habitat Capability Index; same formula as with year 0 in Table 1, but based here on col. k
- m =  $(f \times j \times l) / k$

**TABLE 3. ESTIMATING HABITAT CAPABILITY OF RESERVED LANDS.**

Mean ac suitable habitat						
-----						
Province	Forest	Total Acres of suitable habitat within on 1.5-mi reserved			No. 1.5-mi circles	Total capabil. (No. pairs)
		(a)	(b)*	(c)		
-----						
OLPE	Oly	1862	37440	20.1	0.38	7.6
WACA	Oka	1148	30080	26.2	0.28	7.3
	Wen	860	125170	145.5	0.26	37.8
	MBS	1048	179100	170.9	0.27	46.1
	GIP	1196	30200	25.3	0.30	7.6
Totals:		364550				98.9
-----						
ORCA	Mth	1913	75950	39.7	0.72	28.6
	Wil	1297	118910	91.7	0.60	55.0
	Des	1148	7290	6.4	0.54	3.4
	Unp	1145	26880	23.5	0.54	12.7
	Ror	935	38370	41.0	0.50	20.5
	Win	480	6310	13.1	0.39	5.1
KLAM	Sis	1169	73761	63.1	0.54	34.1
Totals:		347471				159.4
-----						
CORA	Siu	978	15676	16.0	0.51	8.2
=====						
REGIONAL TOTALS:		765137				272

<sup>a</sup> Habitat Capability Index (HCI) values. The HCI denotes the probability of a site being occupied by a breeding pair of spotted owls, given the acreage of suitable spotted owl habitat occurring within a home range use area. Use formulas from col. ~~m~~ in Table 1, but based here on col. a.

KEY to calculations of columns:

- c = b/a  
d = Habitat Capability Index (see footnote a above)  
e = c x d  
\* = need to provide for each alternative; all other columns are calculated

SUMMARY OF CAPABILITY TO SUPPORT PAIRS  
ON RESERVED LANDS, USFS, REGION 6

```

=====
                Total
                capabil.  Total
                (no.    reserved
                pairs)   acres
-----
OLPE  Olympic Peninsula          7  37,440
WACA  Washington Cascades        98 364,550
ORCA+KLAM  OR Cascades + Klamath Mtns  159 347,471
CORA  Oregon Coast Range          8  15,676
-----
REGIONAL TOTALS:                272 765,137

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**TABLE 4. CALCULATING TOTAL HABITAT CAPABILITY ON RESERVED PLUS NON-RESERVED LANDS.**

		Year 0			Year 15		
Physiogr.	Province Forest	Reserved	Non-reserved	TOTAL	Reserved	Non-reserved	TOTAL
OLPE	OLY	7.6	45.7	53.3	7.6	31.6	39.2
WACA	OKA	7.3	20.6	27.9	7.3	20.6	27.9
	WEN	37.8	79.1	116.9	37.8	78.4	116.2
	MBS	46.1	75.0	121.1	46.1	61.9	108.0
	GIP	7.6	57.6	65.2	7.6	48.9	56.5
	subtotal:	98.9	232.3	331.1	98.9	209.8	308.7
ORCA	MTH	28.6	141.0	169.6	28.6	127.0	155.6
	WIL	55.0	202.4	257.4	55.0	170.0	225.0
	DES	3.4	10.9	14.3	3.4	9.6	13.0
	UMP	12.7	131.7	144.4	12.7	104.9	117.6
	ROR	20.5	64.6	85.1	20.5	52.5	73.0
	WIN	5.1	15.7	20.8	5.1	14.9	20.0
	subtotal:	125.3	566.3	691.6	125.3	478.8	604.1
KLAM	SIS	34.1	119.6	153.7	34.1	97.0	131.1
CORA	SIU	8.2	51.1	59.3	8.2	41.3	49.5
Totals: <sup>1</sup>		272	1013	1285	272	856	1131

<sup>1</sup>Regional total summed from province subtotals rounded down to closest unit.

AD-33 Bookplate  
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